REMARKS

Status of the Claims

Claims 1, 2, 4-17, 22, 23, 25-29, 35, 37-40, 42-45, and 47-50 are pending in the present application. Claims 3, 18-21, 24, 30-34, 36, 41, and 46 have been cancelled. Claim 1 has been amended.

Amendments to the Claims

Claim 1 has been amended to correct a typographical error. "R" in lines 15-17 has been replaced with "R_9." Support for the amendment can be found in claim 1 as originally filed. The amendment to claim 1 does not introduce prohibited new matter.

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 2, 4-6, 12, 15, and 25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

The claims are indefinite because a substituent cannot be hydrophobic, hydrophilic, or fluorophilic and because the terms are functional language. Applicants respectfully disagrees because the claim recites that the substituent is either hydophobic, hydrophilic, or fluorophilic. The claim is not requiring the substituent to be hydrophobic and hydrophilic at the same time.

Moreover, these terms are well-known to the skilled artisan. The skilled artisan would readily be able to ascertain whether particular substituents selected from those defined in the claims can be characterized as hydrophobic, hydrophilic, or fluorophilic. A skilled artisan would be able to determine whether a particular substituent is hydrophobic, *i.e.*, repelled by water, hydrophilic *i.e.,* attracted by water, or fluorophilic, *i.e.* attracted to fluorinated groups. These terms and their meanings can be found in any chemical dictionary.

Further, the use of these terms in U.S. patents is conventional. Attached are examples of U.S. patents using these terms in the claims in association with substituent moieties and in the alternative. (See U.S. Patents 6,266,622; 6,113,919; 5,733,526). Also attached are examples of references including a U.S. Patent that use these terms. Thus, these terms are well known to the skilled artisan. (T. Lee, 2003; Geiser *et al.*; U.S. Patent 5,874,469) Moreover, the Examiner has not shown any evidence that would demonstrate that the skilled artisan would perceive any

ambiguity with respect to these terms.

Rejection Under 35 U.S.C. § 103(a)

Claims 1, 2, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cueto *et al.*

Applicants respectfully submits that Cueto *et al.* do not disclose a compound that falls within the scope of the present claims. Compound 3 of Cueto *et al.* falls outside the scope of the claims, and Compound 5 of Cueto *et al.* is excluded by the proviso in the claims.

The Examiner asserts that since Compound 3 exists, it is obvious that Compound 5, the reactant in the synthesis of Compound 3, exists for the synthesis of the final product Compound 3 where X is H. However, Applicants point out that there is nothing in this reference that teaches that the compound of formula 5 is a reactant in the synthesis of formula 3. Cueto *et al*, disclose that new compounds 1 and 2a as well as reisolated ketones 3 and 4 and the fimbrolides 5-8 isolated from *Delisea fimbriata*, show for the first time the coexistence of compounds derived from seven (compound 1) eight (2a, 3, 4) and nine (5-8) carbon skeletons in the one species. (See col. 1, page 279).

The cited reference makes no attempt to describe reaction schemes that may have resulted in any of compounds 1, 2a, 3, 4 and 5-8. Moreover, none of the isolated fimbrolides of formula 5 actually described by Cueto *et al* have both X and Y as bromine. If it were obvious that a compound of formula 5 in which X and Y are both bromine must exist for compound 3 to be made, one would have expected the authors of the cited reference to comment on the absence of a fimbrolide in which both X and Y are bromine. Cueto *et al.* do not teach such intermediate nor suggest that one exists. The seaweed that is the source of the compounds discussed in the reference possesses a complex biochemical matrix of passible synthetic pathways. There is no basis for the examiners assertion that the claimed compounds are obvious intermediates in the plant's synthesis of the compounds discussed by the reference.

Applicants respectfully submit that it is only with the benefit of hindsight that a skilled person would have postulated the existence of a compound of formula 5 in which both X and Y are bromine. Therefore, the cited reference does not render the claimed invention obvious.

Applicants respectfully request withdrawal of the rejection.

Claim Objection

Claims 7-11, 13, 14, 16, 17, 22, 23, 26-29, 35, 37-40, 42-45, 47-49 are objected to because they are dependent upon a rejected claim.

In view of the arguments provided above, Applicants respectfully request withdrawal of the objection of these claims, and an indication that all of the pending claims are allowable.

CONCLUSION

The foregoing amendments and remarks are being made to place the application in condition for allowance. Applicants respectfully request reconsideration and the timely allowance of the pending claims. A favorable action is awaited. Should the Examiner find that an interview would be helpful to further prosecution of this application, they are invited to telephone the undersigned at their convenience.

If there are any additional fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted
Morgan, Lewis & Bockius LLP

Elizabeth C. Weimar
for Sally P. Teng, Ph.D. Reg.# 44,478
Registration No. 45,397

Dated: **August 24, 2004**
Morgan, Lewis & Bockius LLP
Customer No. **09629**
1111 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
202-739-3000

COLLOQUIUM

THE DEPARTMENT OF CHEMICAL & ENVIRONMENTAL ENGINEERING

PRESENTS

Dr. Ted Lee, Jr.

MIT

DATE: March 21, 2003
TIME: 10:10am - 11:00am
PLACE: Bourns Hall A265
Refreshments will be provided.

U — C — R

Tuning Surfactant Morphology on the Nanometer Scale: Density-Responsive and Light-Responsive Systems

Together, water and carbon dioxide (CO_2) constitute the two most abundant and environmentally benign solvents on earth. Furthermore, water and CO_2 reside on opposite extremes of the solvent scale, allowing a wide range of species to be dissolved in dispersions of water and CO_2. Recently, spherical water-in-CO_2 (W/C) and cylindrical CO_2-in-water (C/W) microemulsions have been formed, with potential applications ranging from material synthesis to biphasic reactions. The control of micelle size and shape with CO_2 density, i.e., solvent power, is demonstrated. Furthermore, the unique ability of CO_2 to bridge the solubility gap between fluorocarbons and hydrocarbons allows for the simultaneous solubilization of fluorophilic, lipophilic, and hydrophilic moieties, akin to a "universal solvent".

The ability to form more complex surfactant structures in water-CO_2 systems, e.g., hexagonal, cubic, and lamellar liquid-crystalline phases, is highly desired. While yet to be discovered, these phases would represent templates for nanoscale material synthesis that would be tunable with CO_2 density. Several strategies are proposed whereby CO_2-controlled surfactant assemblies could be utilized to form various nanomaterials.

In addition to density-responsive systems, photo-responsive surfactant systems have also been studied. These systems utilize aqueous solutions of photosensitive surfactants to control the morphology of polyelectrolytes, including proteins. Through photocontrol of surfactant binding onto the polymers, with the surfactant aggregates acting as crosslinkers, photoreversible gelation is realized. Similarly, the ability to control protein folding with light irradiation has also been obtained. Possible applications of photosensitive surfactants in the areas of bio- and nanotechnology will be offered.

W0137

The Fluorophilic Effect as a Guiding Principle in the Design of Conducting Donor Radical Salts. Urs Geiser*, John A. Schlueter, Aravinda M. Kini, Hau H. Wang, Brian H. Ward, Michael A. Whithed, Materials Science Division, Argonne National Laboratory, 9700 South Cass Ave., Argonne, IL 60439, Javid Mohtasham, Gary L. Gard, Dept. of Chemistry, Portland State University, P.O. Box 751, Portland, OR 97207, *ugeiser@anl.gov.

Conducting electron donor radical salts are generally composed of alternating layers of partially oxidized donor molecules such as BEDT-TTF (or ET, bis(ethylenedithio)tetrathiafulvalene) and of charge-compensating anions. The electrical conduction is due to the partial filling of the band formed by the orbital overlap of the electron donor molecules, whereas the anion layer is usually insulating and diamagnetic. Molecules such as ET are capable of adopting a variety of layer packing motifs, only some of which lead to good electrical conduction. The packing motif chosen is largely determined by the packing of the anion layer. The organo-fluorine functionality has very limited affinity for either hydrophilic, polar groups or for hydrocarbon groups. Fluorocarbons therefore tend to aggregate mainly with themselves, i.e., the fluorophilic effect. This aggregation principle will be shown to guide the packing of the anion layers in ET salts with a number of fluorocarbon-sulfonate anions, where it leads to either double ribbons or bilayers. The formation of bilayer anions provides an avenue for much more extremely two-dimensional molecular conductors than previously found.

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